

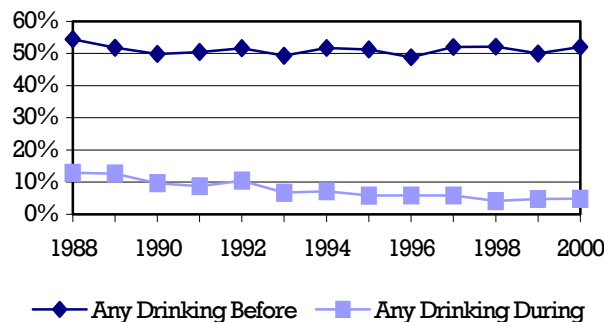
MI PRAMS Delivery

Trends in Alcohol Use During Pregnancy in Michigan

Prenatal alcohol exposure has consistently been associated with a variety of adverse health and behavioral outcomes in infants and children. One of the most recognized and severe consequences is fetal alcohol syndrome (FAS), a condition characterized by facial deformity, growth deficiency, and neurological and behavioral problems in the child (see box, page 3). Alcohol use has also been correlated with varied presentations of these and other outcomes. While most research has concentrated on the effects of heavy alcohol consumption, more recent reports indicate that even light to moderate drinking during pregnancy may produce adverse effects in the infant. Thus, it has been determined that there is no safe amount of alcohol consumption for pregnant women during their pregnancy.

The Pregnancy Risk Assessment Monitoring System (PRAMS) is one of

Figure 1. Prevalence of Any Alcohol Use in the Three Months Before Pregnancy and Last Three Months of Pregnancy, Michigan, 1988-2000



the most reliable sources of information on drinking during pregnancy. Research has suggested, for instance, that women are generally more willing to report alcohol use on PRAMS than on the birth certificate. Between the years 1988 and 2000, PRAMS asked women how many drinks (i.e. 1 drink being 1 glass of wine, wine cooler, can or bottle of beer, shot of liquor, or mixed drink) they consumed in an average week during the three months before they became pregnant and during the last three

months of pregnancy. The former is intended to serve as a proxy for periconceptual drinking, drinking that may occur before women learn that they are pregnant, at a time of critical fetal development. In 2000, for example, 11.2 percent of women in Michigan had not confirmed their pregnancy by the eighth week of gestation — the end of the period of fetal organ development — and 36.2 percent of these women reported drinking in the three months before pregnancy.

(Continued on page 3)

Inside this issue:

Measuring Alcohol Use Assessment During Pregnancy in PRAMS	2
Sociodemographic Profile of Alcohol Use in Michigan	2
Fast Facts	3
Fetal Alcohol Syndrome	3

Special points of interest:

- The prevalence of drinking before pregnancy has remained stable, while the prevalence of drinking during pregnancy has declined.
- Trends in prenatal counseling about alcohol are difficult to monitor, but it is apparent that the majority of women in general are being educated about the effects of consuming alcohol during pregnancy (see page 2).
- Women most likely to drink before and during pregnancy include those who are older, more educated, and have higher incomes. White women are more likely to drink before pregnancy than black women (see page 2).

Measuring Alcohol Use Assessment During Pregnancy in PRAMS

1988 to 1995

- PRAMS inquired if, during a prenatal care visit, a doctor or nurse asked about drinking alcohol. This was followed by a question about whether a doctor or nurse discussed how drinking could affect the baby.
- Responses regarding screening for consumption ranged from 88.9 percent to 94.5 percent and provision of education on alcohol effects ranged from 74.5 percent to 77.7 percent.

1996 to 1999

- PRAMS dropped the question about screening for alcohol use and included a question regarding education about the effects of alcohol within an inventory of other prenatal care content questions. Health care workers were added as personnel who may have discussed topics

during prenatal care. The change in the question may have impacted the responses elicited.

- Percent of women who answered that a doctor, nurse, or other health care worker talked about the effects of alcohol on the baby ranged from 80.8 percent to 84.6 percent.
- ### 2000
- Question similar in form and structure to that used in 96-99, but explicitly states that only discussions, not literature and videos, should be considered in the responses. Again, the change of the question appears to have impacted the responses.
 - Responses regarding the receipt of education about the effects of alcohol dropped to 69.9 percent.

T-ACE: A Screening Tool for Clinical Practice

- Used to identify risk drinking among pregnant women in clinical settings.
- Four-item questionnaire that takes 1 minute to complete. Measures:
 - * **TOLERANCE** (>2 drinks to feel high)
 - * **ANNOYANCE** with others' comments about drinking
 - * Attempts to **CUT** down on drinking
 - * Need for an **EYE-OPENING** (morning) drink
 - * Positive response to tolerance question receives 2 points, others receive 1 point. Score of 2 or higher indicates risk drinking.
- Shown to be sensitive (69%) and effective and has been validated (see Obstetrics & Gynecology 1998; 91: 892-8).

Sociodemographic Disparities of Alcohol Use in Michigan

Based on the combined data for the years between 1996 and 2000, drinking in the *three months before pregnancy* was most prevalent among the following groups of women:

- **Age over 30 years old** (55.3 percent),
- **White** (56.2 percent),
- **College educated** (61.6 percent),
- **Nulliparous** (55.3 percent),
- **Incomes exceeding \$40,000** (62.0 percent).

Using multivariate logistic regression analysis, the following variables were found to be significantly associated with drinking in the three months before pregnancy:

- **Age over 20 years** (odd ratio [OR]=2.9, 95% CI=1.8-4.5 vs. age less than 18 years),
- **White race** (OR=2.3, 95% CI=2.0-2.7 vs. white race),
- **Nulliparity** (OR=2.2, 95% CI=1.7-2.8 vs. three or more previous live births), and
- **Income greater than \$40,000** (OR=1.8, 95% CI=1.5-2.3 vs. income \$20,001 to \$30,000)

Education was not significant in the presence of these variables and hence was not included in the final model.

The following groups of women who are most likely to drink in the *last three months of pregnancy*:

- **Age over 30 years old** (9.6 percent),
- **College educated** (7.2 percent),
- **Three or more previous live births** (8.1 percent),
- **Income exceeding \$40,000** (7.2 percent).
- Race was not significantly associated with drinking in the last three months of pregnancy before adjusting for other variables; 5.2 percent of white women and 5.1 percent of black women reported drinking during pregnancy.

After controlling for confounding using logistic regression, **age greater than 30 years** (OR=7.4, 95% CI=3.9-14.2) was significantly associated with drinking in the last three months of pregnancy, compared with women 20 years or less. The other variables were not significantly associated with drinking in the last three months of pregnancy.

Alcohol use is detrimental to the fetus throughout pregnancy and intervention efforts should thus be sustained throughout pregnancy and women's reproductive years. Individuals who design intervention efforts should consider the sociodemographic differences with respect to targeting interventions in order to maximize their effectiveness.

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The prevalence of drinking in the three months before pregnancy among women in Michigan remained relatively constant from 1988 (54.4 percent) through 2000 (52.0 percent), [Figure 1]. The prevalence of drinking in the last three months of pregnancy declined — from 12.9 percent in 1988 to 4.9 percent in 2000 — although it appears that the prevalence of drinking during pregnancy is no longer declining as of 1998.

Trends were also examined by sociodemographic group using three year moving averages, as several of the groups contained small numbers of women, causing the unadjusted trends to be unstable. The trends in drinking in the three months prior to

pregnancy were relatively constant within most age, race, education, and parity groups. The most noticeable declines from 1988 to 2000 occurred in women 26 to 30 years old, black women, and women with a high school education. A slight increase was seen in women 18 to 20 years old and women with less than a high school education. There were declines in nearly every group for drinking in the last three months of pregnancy, with the exception of women with some college education, whose average prevalence appears to have increased slightly within the last few years.

Since the 1981 release of the public health recommendation advising against drinking during pregnancy or when planning a pregnancy, public awareness of the issue

has been heightened. Various other public education campaigns have also enhanced awareness, including the 1989 mandate requiring alcohol bottles to bear warning labels about the dangers of drinking during pregnancy. Public attention was specifically drawn to fetal alcohol syndrome with the release of *The Broken Cord* by Michael Dorris in 1989. A subsequent increase in social stigma surrounding drinking during pregnancy may also have precipitated a decrease in the likelihood of self-identification as a drinker. The decline in self-reported drinking during pregnancy among Michigan women is likely due to a combination of these and other factors.

Fast Facts: Alcohol Use in PRAMS (1996-1999)

** Women who drank in the three months before pregnancy were significantly more likely to experience **unintended pregnancy** (OR=1.5*, 95% CI=1.3-1.8).

** Women who reported drinking in the last three months of pregnancy were significantly more likely to enter **prenatal care late or not at all** (OR=1.7*, 95% CI=1.1-2.7).

*Odds ratios calculated controlling for age, race, education, and income.

Fetal Alcohol Syndrome

- Maternal prenatal alcohol use is one of the leading causes of developmental disabilities and birth defects. The term FAS refers to a set of specific impairments that can be attributed to prenatal alcohol use.
- Diagnosis of FAS is based on the presence of three criteria:
 - * Facial: smooth groove on upper lip, thin lips, short eye openings
 - * Growth: prenatal or postnatal height and/or weight $\leq 10^{\text{th}}$ percentile
 - * Developmental/behavioral: overall head circumference $\leq 10^{\text{th}}$ percentile; neurobehavioral problems; mental deficiency; poor attention span; fine motor problems; social-emotional problems, with or without mental retardation
- Alcohol-related birth defects (ARBD) and alcohol-related neurodevelopmental disorder (ARND) are alcohol induced congenital anomalies and mental impairments, respectively, that may not feature facial or growth characteristics.
- The true incidence of FAS is not known. Estimates range from 0.3 to 2.2 cases per 1,000 live births, resulting in 1,200 to 8,800 FAS births in the U.S. annually. The annual cost of FAS is estimated to be \$1.9 billion (1992), and the lifetime cost of FAS per child is estimated to be between \$1.5 million and \$5.0 million. ARBD and ARND affect a much larger population, and, hence, their costs are in addition to those presented.
- Some secondary conditions associated with FAS include mental health disorders, difficulty in school, antisocial behavior, and criminal justice involvement. Protective factors in a child's environment, including early diagnosis and provision of parental education, support, and maternal health services, help children reach their developmental and educational potential.

“...it appears that the prevalence of drinking during pregnancy is no longer declining as of 1998.”

For more information see <http://www.cdc.gov/ncbddd/fas>

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PRAMS Overview

PRAMS (Pregnancy Risk Assessment and Monitoring System) is a population based survey of maternal experiences and behaviors before and during a woman's pregnancy and during early infancy of her child. African-American women and women who deliver low birth weight infants are over-sampled in order to ensure more accurate estimates. Each year, approximately 1,000-3,000 new mothers are randomly selected from a frame of eligible birth certificates. A survey is mailed out to the women at two to six months after delivery, followed by telephone reminders to those who have not responded. In addition to the mailed surveys, a stratified systematic sample of African-American mothers is selected from six inner-city hospitals, where an initial interview is conducted followed by a mailed survey two to six months later. This is so we can better capture the experiences among African-American mothers and their infants. The results presented are weighted to represent all of Michigan's mothers and infants.

Suggested Citation

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